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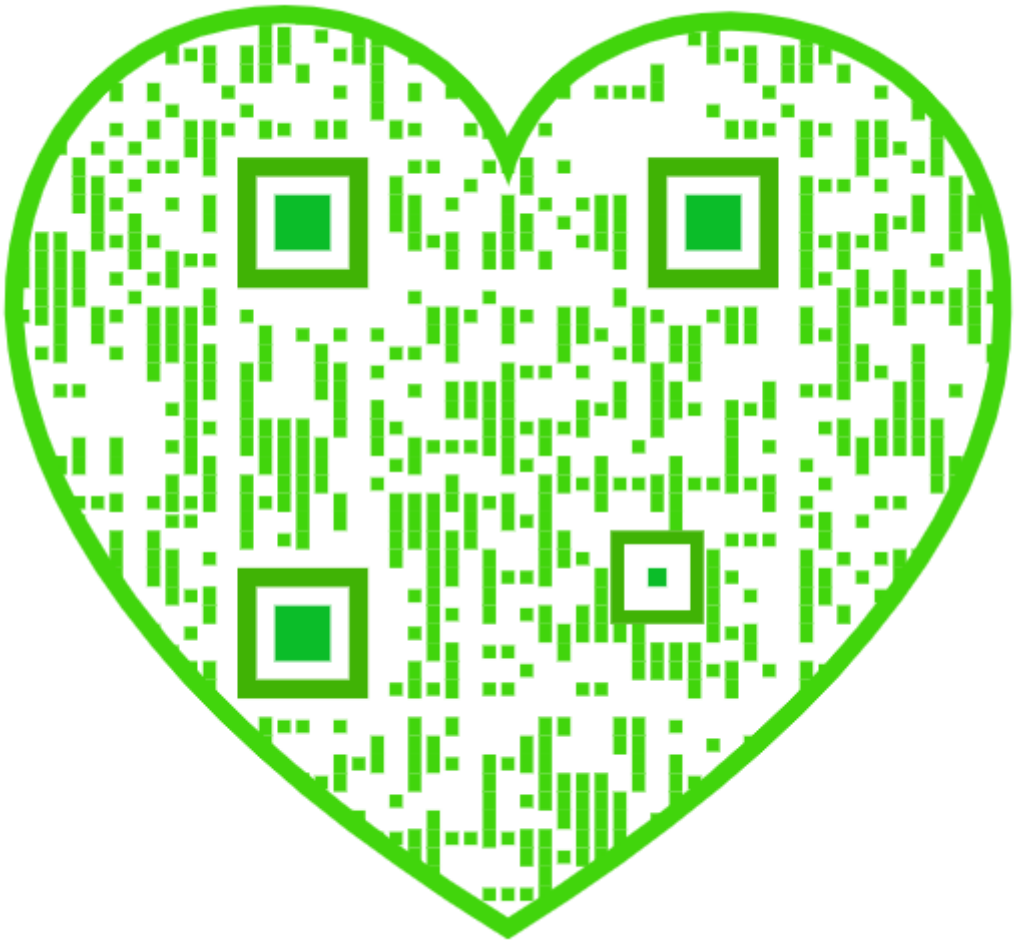

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PRESERVATION OF FOOD

CANNING, PRESERVING DRYING

AND

PRESERVING OF EGGS

Issued by

AGRICULTURAL DIVISION

OHIO BRANCH
COUNCIL OF NATIONAL DEFENSE

D. of D.
AUG 20 1917

Compiled by the
HOME ECONOMICS DEPARTMENT
The Ohio State University

PRESERVATION OF FOOD

In view of the general food shortage and of the shortage of supplies for commercial canning, it is important that fruits and vegetables be preserved by some means — canning, curing or drying. *Food must not be allowed to go to waste.* The uncultivated plants, such as dandelion, mustard, sour dock, pepper cress, purslane, may be canned for greens, as may the leaves of beets, turnips, radishes, horseradish, rhubarb and rape. Clean parings of fruit may be boiled and the liquid canned to be used in gelatin or cornstarch puddings, for sausage and for summer beverages. Fruit juices are too valuable to be thrown away. A surplus of rhubarb, gooseberries, or wild fruits like grapes and berries will yield juices that can be used in many ways. It is worth while to can material for soups — vegetable purees (the cooked vegetable mashed thru a strainer), mixtures of chopped vegetables and stock made by boiling meat bones and trimmings. When there is a surplus of green tomatoes that will not ripen, they may be canned and used the same as the ripe ones. The midrib of the leaves of Swiss chard may be canned and used as a vegetable.

Foods spoil because minute plants called micro-organisms grow on them. These plants are known as bacteria, yeasts and molds. The aim in preserving foods is either to kill these plants or to create a condition in which they cannot grow. The processes are known as canning, drying, refrigeration and curing. Curing may be accomplished with sugar, salt, vinegar and spices. Chemicals, often known on the markets as canning powders, are sometimes used but their use is unjustified, because of their questionable effect on health and because they are unnecessary when the food is of good quality and properly handled.

When there is a shortage in the supply of sugar and a surplus in the supply of fruits, the fruits should be *canned without sugar.* Sugar is not necessary to accomplish thoro sterilization.

CANNING

OPEN-KETTLE OR HOT-PACK METHOD

The food material is cooked thoroly and is packed, boiling hot, into hot, sterilized jars and sealed. Fruit canned by this method will keep but vegetables will not. For any purpose, the method has these objections:

1. Flavor may be lost.
2. The food material may be crushed in the handling.
3. It requires standing over a hot stove while filling the jars.

INTERMITTENT OR THREE-DAY METHOD

The food material may be packed, uncooked, into clean, cold jars, or may be blanched and dipped as in cold-pack method. The rubbers and tops are adjusted so as partially to seal, then the jars are placed in water and boiled or steamed for a certain length of time. The jars are sealed, allowed to stand for 24 hours, and again boiled for the required time. This is repeated on the third day. This method is used successfully with vegetables, but it does require somewhat more fuel and handling than the cold-pack method.

COLD-WATER METHOD

Only sour fruits like sour cherries, rhubarb and gooseberries can be preserved by the cold-water method. They are cleaned, packed uncooked into a clean cold jar. The jar is filled to overflowing with cold water and sealed. Unless a shortage in sugar warrants it, this method has no advantage over other methods.

COLD-PACK METHOD

In the cold-pack method of canning the food material is blanched, that is, cooked for a certain length of time in boiling water or steam, and is then cold dipped, that is, quickly dipped into cold water. It is then packed into clean hot jars. Hot water or sirup is usually added, the rubbers and tops adjusted so as partially to seal, and the cans are placed in hot water which completely covers them 2 or 3 inches. They are boiled for the required length of time and sealed. It is this method that is recommended and that is described in this bulletin. The advantages of this method are:

1. It does not require long standing over a hot stove.
2. The blanching in some cases reduces the bulk so that more may be packed in a can.

3. The quick change in temperature between tthe boiling and the cold water in the blanching and cold dipping process is supposed to create a condition favorable to the death of micro-organisms.

4. It is a safe method for canning vegetables.

EQUIPMENT

It is convenient and rather an encouragement to do canning to have set aside a few utensils to be used for this one purpose. The list should include the following: Half-pint measuring cup, paring knife, basin, tablespoons, teaspoons, kettle.

A colander or a wire frying basket may be helpful.

A duplex fork or coal tongs is best for lifting cans out of the hot water.

A strong wire may be bent with a hook at one end to use with the spring top jars or a par cake turner may be bent so as to slip under the jars and thus lift them.

Cheesecloth or some other thin cloth is needed for blanching and cold dipping, if the wire basket is not used.

Cans and rubbers and the canner, or sterilizer, complete the outfit.

Steam Pressure Canner. — The steam pressure canner is made so that when closed steam does not escape. This causes a pressure which raises the temperature above 212 degrees, the boiling point of water. Because of the high temperature, the time required for sterilizing is shortened and in this fact lies its advantage. The home size is usually made large enough to hold as many as a dozen quart cans and costs about $15.00. Another type, made to use out of doors, is larger and more expensive. It would be useful when large quantities are being canned as in clubs or neighborhood groups.

Directions for using the steam pressure canner may be procured, free of cost from the States Relations Service, U. S. Department of Agriculture, Washington, D. C.

Homemade Hot-Water Bath. — This kind of a canner can be prepared in any home and with little expense. There must be a container with a close fitting cover and a false bottom. The container may be a wash boiler, a lard can, a new garbage can, or any straight-sided pail. The false bottom is required to keep the cans off the bottom of the container so as to allow a free circulation of water about them. It may be constructed of laths nailed together with cross pieces or it may be of perforated cake tins. Wire broilers or cake coolers serve the purpose nicely. The tinner can make a good one by cutting a piece of galvanized tin a little smaller than the size of the bottom of the canner, perforating this with one-inch holes, and soldering on the under side some points that will raise it up one inch. Two strips of tin may be fastened at opposite sides, made a little shorter than the height of the canner, and when hooked at the top act as handles with which to lift the false bottom.

Cans and Jars. — Tin cans with tops requiring the use of sealing wax are not used with the cold-packed method. Tin cans with tops requiring solder can be used, but require special equipment for soldering. The procuring of tin cans is likely to be difficult on account of the shortage of the supply of tin. Glass jars are always most desirable for

home use. Any type of glass jar may be used with the cold-pack method. The types may be described as follows:

Screw top jars have tops to be screwed on. The kind which has a screw band and a separate glass top is much better than the old style of one piece top.

Spring top jars have glass tops that are clamped down by metal wires.

Vacuum seal jars have metal tops with a rubber-like material on the edges that eliminate the use of rubber rings. During sterilizing the tops are held in place by light clamps.

Rubbers. — All rubbers should be elastic and not too thick. When purchased, they should be tested to see how much "pull" they have. Their color makes no difference in the quality. Good rubber is not injured by several hours' boiling.

TERMS USED IN CANNING

Blanching means boiling to remove objectionable flavors, to reduce bulk, to help kill bacteria.

Cold dipping means dipping quickly into and out of cold water to make handling easier and to help kill bacteria.

Scalding means dipping into hot water long enough to remove the skin.

Processing or sterilizing means heating long enough to kill micro-organisms.

To seal partially means that, in the case of spring top jars, only the first wire is put into place on the top. The wire should fit into the glass top with a click. If it is too loose to do this, the wire should be removed and bent so as to fit tighter. In the case of screw top jars the tops are screwed down fairly tight, then turned back about a quarter turn. Vacuum seal jars are partially sealed when the top is placed and the clamp fitted down over it.

CANNING DIFFICULTIES

1. Rubbers popping out from beneath the top during sterilizing may be due to poor rubber, to too large a rubber or to too much pressure from the top. The top and rubber must be removed, a new rubber and top placed and the jar returned to the canner for about five minutes.
2. Liquid is drawn out from the can, sometimes, when the water in the canner does not cover the cans at least 1 inch, or when there is not free circulation about the cans, or when the tops have been adjusted too loosely.
3. Jars may break when there is not free circulation of water about the cans, when a cold can is placed in hot water, or a hot one in cold water, when a can is placed in a cool draft.
4. Shrinkage of vegetables may be caused by insufficient blanching.
5. An objectionable, strong flavor may be due to improper blanching and cold dipping.
6. Bubbles that show after sterilization do not affect the keeping qualities of the product.

7. Cloudy appearance of the liquid in the cans may be due merely to over-cooking which forces out the interior of the product or to very hard water.

8. "Flat souring" of corn, peas, beans and asparagus, is a condition giving a slightly sour taste and objectionable odor, and may be due to allowing the vegetable to stand too long. As soon as each jar is filled it should be set in the canner so that cooking is not delayed. It is probable that an unknown organism produces this condition and the souring may occur in spite of all precautions.

9. Over-cooking may not always be objectionable but it is likely to happen with fruits which require a short time for sterilizing. Cooking is going on while the water is coming to the boiling point and if this time is prolonged some deduction should be made from the time given for sterilizing.

10. Spoilage may result from use of old rubbers, from keeping jars in a place that has alternately cold and warm temperattures, from breaking the seal of jars by attempting to tighten the tops after the can has cooled and a vacuum been made.

JUDGING CANNED FRUIT AND VEGETABLES

The following score card shows the points by which canned products are judged and the value which is given to each point on the basis of 100. At contests, the judging is quite often done by appearance only. It is easy to see how this is unfair. If a food is not good to eat it is useless and the only way to test that quality is by tasting. The opening of the can sometimes reveals molds, fermentation or use of canning powders. If the committee in charge of the contest has this in mind, the time for the judging may be planned so that there is a minimum loss of food material, resulting from the opening of the cans.

SCORE CARD FOR CANNED FRUIT

Quality	Perfect Score	Score of Exhibit
Color	15	
Flavor	60	
Condition of fruit	15	
Condition of syrup	10	
Total	100	

FRUIT AND VEGETABLE CANNING CHART
Based on Government Home Canning Work

Products to be Canned	Preparations	Boiling Water or Sirup	Processing or Cooking Period
Soft fruits—			
Strawberries, dewberries, blackberries, blueberries.	Grade, rinse, stem, pack whole.	3 cups sugar to 2 cups water, boil for 4 minutes or until 104° Centigrade or 219° Fahrenheit is registered.	Hot water bath, strawberries, 8 minutes, other fruits 8 to 12.
Peaches, apricots, sweet cherries.	Grade, rinse, seed, skin or pit. Pack cherries whole, peaches and apricots pack in halves.		
Sour berry fruits— Currants, gooseberries, cranberries, sour cherries.	Stem, pit, rinse, blanch in hot water 1 minute. Dip quickly into cold water. Pack whole closely.		Hot water bath, 12 minutes.
Hard fruits— Apples, pears, quinces.	Grade, blanch 1½ minutes in hot water, dip quickly into cold water. Skin, core, pack whole, quartered or sliced.		Hot water bath, 20 minutes.
Vegetable greens— Asparagus, spinach, cauliflower, Brussels sprouts, beet tops, Swiss chard, kale, French endive, dandelion.	Blanch in steam from 15 to 20 minutes. Dip into cold water. Cut in convenient sizes. Pack tight, season to taste.	Fill jar with boiling water. Add ½ teaspoon salt to 1 pint jar, or 1 teaspoonful to 1 quart jar.	Hot water bath, 90 minutes, except cauliflower 45 minutes.

Tomatoes—	Scald long enough to loosen skins. Dip quickly into cold water, core and skin. Pack whole.	Add 1 teaspoon of salt to 1 quart jar or ½ teaspoon salt to 1 pint jar.	Hot water bath, 20 minutes.
Corn—	Blanch on cob from 3 to 5 minutes. Dip quickly into cold water. Cut from cob with sharp knife. Pack loosely.	Fill jar with boiling water. Add 1 teaspoon salt to 1 quart jar, or ½ teaspoon salt to 1 pint jar.	Hot water bath, 3 hours.
Legumes— Peas, Lima beans, string beans, lentils.	Cull, string, grade. Blanch from 2 to 5 minutes in boiling water. Pack whole.	Fill jar with boiling water. Add 1 teaspoon salt to 1 quart jar, or ½ teaspoon salt to 1 pint jar.	Hot water bath, 2 hours.
Roots— Beets, carrots.	Cleanse thoroly. Scald till skin is loose. Dip quickly into cold water. Remove skins. Pack whole or in cubes.	Fill jar with boiling water. Add 1 teaspoon salt to 1 quart jar, or ½ teaspoon salt to 1 pint jar.	Hot water bath, 90 minutes.

A sirup made of 3 cups of sugar to 2 cups of water and boiled for 4 minutes or until it reaches the temperature of 104° Centigrade or 219° Fahrenheit can be used in the canning of all fruits. The sugar should be well dissolved before placing on the fire, and the time counted when it begins to boil thruout.

Variations may be made to meet the individual tastes and kind of fruits. If a thinner and lighter sirup is desired do not boil sugar and water more than 2 or 3 minutes. If a thicker, heavier sirup is desired, boil the sugar and water not more than 5 minutes.

SCORE CARD FOR CANNED VEGETABLES

Quality	Perfect Score	Score of Exhibit
Color	15	
Flavor	65	
Condition of vegetable	20	
Total	100	

CANNING OF MEAT

Occasionally, there may be on hand more meat than can be eaten fresh, and it is necessary to preserve it in some way. The most common methods are drying and smoking, curing in salt or cooking and covering with hot fat. A method not so commonly used is canning, for which the directions follow. Meat may be canned as successfully as vegetables and it is a great convenience to have it ready for a stew, salad, a creamed dish, sandwich filling, or any use to which meat may be put. It is sometimes a saving as well as a convenience to can young cockerels that one may not want to feed for a long time.

Method 1. — The raw meat may or may not be freed from the bones and then packed into clean hot jars. Hot water and seasonings may or may not be added, but usually 1 teaspoon of salt is added to each quart can. Adjust the tops and rubbers so to seal partially. Place the jars in hot water, boil for 4 hours, remove jars and seal.

Method 2. — Sear the meat in a hot oven, in hot fat or in boiling water, then steam or simmer it until it can be torn apart. Pack into clean, hot jars, fill the jars with the stock, add 1 teaspoon of salt to each quart, partially seal, place in hot water and boil for 3 hours.

MANUFACTURERS OF CANNING EQUIPMENT

Home and Club Cooperative Canning Outfits and Devices

Pressure Cooker Company	Denver, Colorado	Aluminum Steam Canners and Cookers.
Sprague Canning Machinery Co.	222 N. Wabash Ave., Chicago, Illinois	Steam Canner.
Henninger & Ayes Mfg. Co.	Portland, Oregon	Steam Canner.
Northwestern Steel & Iron Works	Eau Claire, Wisconsin.	Steam Canner.
E. F. Kirwan & Company	Baltimore, Maryland	Hot Water Bath Canner.
Modern Canner Company	Chattanooga, Tennessee	Hot Water Bath Canner.
F. S. Stahl	Quincy, Illinois	Hot Water Bath Canner.
Farm Canning Machine Co.	Meridian, Mississippi	Hot Water Bath Canner.
Home Canner Mfg. Company.	Hickory, N. Carolina	Hot Water Bath Canner.
Monarch Manufacturing Co.	Chattanooga, Tennessee	Hot Water Bath Canner.
Phillips & Buttorff Mfg. Co.	Nashville, Tennessee	Hot Water Bath Canner.
Raney Canner Company	Chattanooga, Tennessee	Hot Water Bath Canner.
Southern Evaporator Co.	Chattanooga, Tennessee	Hot Water Bath Canner and Evaporator.

Royal Home Canner Co.....	Chattanooga, Tennessee	Hot Water Bath Canner.
Mrs. Hermine Baehr.....	29 Garrison Lane, Baltimore, Maryland....	Tray for Boiler (3 in 1).
Favorite Manufacturing Co...	Tampa, Florida	Water-seal Canner.

Mechanical Seals and Sealers For Tin and Glass

Burpee & Letson, Ltd.....	South Bellingham, Washington	Automatic Can Sealers and Tin Cans.
Bowers Can Seal Company...	146 Summer St., Room 44, Boston, Mass....	Automatic Can Sealers and Tin Cans.
Crown Cork and Seal Co....	Baltimore, Md., Chicago, Ill., San Francisco, Calif., and other cities	Glass Bottles, Caps, Milk Bottle Caps and Sealers for same.
American Metal Cap Company	Summit Street and Commercial Wharf, Brooklyn, N. Y.....	Glass Jars, (metal caps).
The Enterprise Mfg. Co. of Pa.	Philadelphia, Pa.	Bottle Cappers — from 3 to 14 inches.
Henninger & Ayes Mfg. Co..	47 First Street, Portland, Oregon	Automatic Can Sealers and Tin Cans.

Steamers

Wilmot, Castle & Company...	Rochester, New York..	Steaemers.

Heating Devices

Manning, Bowman & Company	Meriden, Connecticut..	Alcoholite Stoves.

Tin Cans, Glass Jars and Rubber Rings

Kerr Glass Manufacturing Co.	Sand Springs, Okla....	Economy Jars.
Hazel-Atlas Glass Company..	Wheeling, West Va....	Glass-top Jars.
Smalley Fruit Jar Company..	26 Dock Square, Boston, Mass.	Glass-top Jars.
Boston Woven Hose & Rubber Co.	Boston, Mass.	Rubber Rings.
Ball Bros. Glass Mfg. Co....	Muncie, Indiana	Mason and Glass-top Jars.
Ben Schloss	San Francisco, Calif...	Two-piece Top Jars.
	Philadelphia, Pa., New York City, Chicago, Illinois	Tin Cans.
American Can Company.....		
Continental Can Company....	Chicago, Illinois	Tin Cans.
United States Can Company..	Cincinnati, Ohio	Tin Cans.
Southern Can Company.....	Baltimore, Maryland...	Tin Cans.
Wheeling Can Company.....	Wheeling, W. Va.....	Tin Cans.
Tennessee Can Company.....	Chattanooga, Tenn. ...	Tin Cans.
Virginia Can Company.....	Buchanan, Virginia ...	Tin Cans.
Griffith & Turner Company...	Baltimore, Maryland...	Tin Cans and General Equipment.
A. K. Robins & Company....	Baltimore, Maryland...	Tin Cans and General Equipment.
Staunton Jar Corporation....	Ellicott Square, Buffalo, New York.....	Vacuum Seal Jars.
Travis Glass Company.....	Clarksburg, Virginia...	Glass Jars.
Chesapeake Glass Company...	Baltimore, Maryland...	Glass Jars.
Thatcher Manufacturing Co..	Elmira, New York....	Glass Jars.

PRESERVING FOOD WITH SUGAR

As long as the nation's supply of sugar warrants it, many fruits may be preserved by the making of jellies, preserves, marmalades, butter, jams and conserves. Jelly is made from the clear fruit juice. In preserves the fruit is kept as nearly whole as possible in a very thick sirup. Marmalade, butters, jams are very similar and are made of the pulp and juice cooked until very concentrated. Conserves are mixtures of fruit with nuts or orange peel or raisins.

Beet sugar and cane sugar are chemically the same and it makes no difference which is used.

JELLY MAKING

"Ideal fruit jelly is a beautifully colored, transparent, palatable product obtained by so treating fruit juice that the resulting mass will quiver, not flow, when removed from its mold; a product with texture so tender that it cuts easily with a spoon, and yet so firm that the angles thus produced retain their shape; a clear product that is neither sirupy, gummy, sticky nor tough; neither is it brittle and yet it will break and does this with a distinct, beautiful cleveage which leaves sparkling faces."—Goldthwaite.

Two requirements for the process of jelly making are the presence of acid and of pectin in the fruit juice. Some fruits naturally have too little acid, but, if they have pectin, some other acid fruit juice may be added. Fruits for jelly making should be gathered while a little under-ripe. Pectin is naturally abundant in some fruits and lacking in other. It is a good plan to test the fruit juice to determine its amount of pectin. This may be done by adding to 1 tablespoon of the juice, extracted by cooking, 1 tablespoon of grain alcohol. Mix in a glass, let stand a few minutes and note the amount of jelly-like material which settles at the bottom. By performing this test along with a test of a juice which is known to yield good jelly and comparing the relative amounts of pectin, it is possible to determine the jelly-making quality of an unknown juice. The white inner skin of lemon and orange peel contains considerable pectin which may be extracted and added to fruit juices which are deficient in it.

To extract pectin from oranges and lemons, cut or scrape the yellow outer peel from the white inner skin. Remove the white portion and pass it thru a food grinder. Soak in sufficient water to cover. Let stand 2 or more hours. Cook slowly for about 2 hours. Strain thru a jelly bag.

It is suggested that red haws, the fruit of the hawthorn tree, may be used for jelly. Combined with apple, wild cherries may be used.

To extract juice from very juicy fruit, the fruit should be carefully cleared and heated with just enough water to prevent burning. It may be mashed to help extract the juice. When thoroly heated thru, pour into a jelly bag and allow to drain. For a first quality jelly, the bag must not be squeezed. For a second quality jelly, the

pulp may again be heated with water and drained in the jelly bag. The bag may be squeezed, but some of the pulp will be forced thru and the jelly will be cloudy. If the bag is not squeezed and care is taken in proportioning the sugar, this second extraction will yield first quality jelly. The pulp may be passed thru a colander or strainer and used for a marmalade.

To extract juice from less juicy fruits, the fruit should be carefully cleaned and heated with enough water nearly to cover. Cook until thoroly heated thru. Drain as described above. The juice may be canned and made into jelly at some future time if desired.

Proportion of Sugar and Fruit Juice. — The proportion of sugar to be used depends on the amount of pectin present — the more pectin, the more sugar to be used and vice versa. In general, the following proportions will be found successful:

For 1 cup currant juice, use 1 cup sugar.
For 1 cup green grape juice, use 1 cup sugar.
For 1 cup red raspberry juice, use $\frac{3}{4}$ cup sugar.
For 1 cup blackberry juice, use $\frac{3}{4}$ cup sugar.
For 1 cup sour apple juice, use $\frac{3}{4}$ cup sugar.
For 1 cup crabapple juice, use $\frac{3}{4}$ cup sugar.

Too much sugar gives too soft a jelly. Too little sugar gives a tough jelly. No amount of boiling will correct a failure due to wrong proportion of sugar. If the jelly fails to set, more juice, which will add more pectin, may be added and a second cooknig may correct the mistake. This, however, will not be as satisfactory a jelly as it would have been if correctly proportioned the first time.

The sugar is added hot to the juice after it has been boiling a few minutes. It is added hot so as not to cool down the temperature and thus prolong the cooking, and it is added after the boiling has continued for a few minutes, in order not to waste the sugar by frequent skimmings or by the chemical change resulting from long boiling with acid.

Time Required to Make Jelly. — The length of time the juice should be boiled varies but is usually from 8 to 10 minutes for currants and green grapes, and from 20 to 30 minutes for apples, raspberries and blackberries. In either case the sugar is added after the boiling is partially completed.

The jelly is done when it drops from the edge of the spoon in two drops instead of one or it comes off in a sheet or flake. It must be removed from the fire immediately and poured into glasses.

Filling Jelly Glasses. — The jelly glasses must be hot and had best be setting in hot water when the jelly is poured into them. When the jelly is set, very hot paraffin should be poured on the top. The tin cover may then be placed and the glasses labelled.

Typical Set of Directions for Jelly Making. — A typical direction for making (currant jelly) reads like the following: Clean the currants and place them in an enamel kettle with a very little water. Mash them with a potato masher. When they are thoroly heated thru pour into the jelly bag and drain without squeezing the bag. Measure the juice.

Test it for amount of pectin. If it seems to have the usual amount, measure out the sugar in the proportion of 1 cup of sugar to 1 cup of juice. Heat the sugar in the oven, taking care not to over-heat it. Boil the juice for about 6 minutes, skimming off the scum as it collects. Add the hot sugar and boil for about 2 minutes more, or until the jelly drops from the edge of the spoon in a sheet. Pour at once into hot glasses placed in a basin of hot water.

Equipment for Jelly Making. — The equipment for jelly making should include:

Enamel kettle
Two basins
Small sauce pan for paraffin
Half pint glass measuring cup
Wooden spoon
Potato masher
Paring knife
Jelly bag or piece of cheesecloth
Jelly glasses with covers
Paraffin
Labels

Scoring or Judging of Jelly. — The quality of a jelly may be judged according to the following score card:

SCORE CARD FOR JELLY

Quality	Perfect Score	Score of Exhibit
Flavor	50	
Color	15	
Consistency	20	
Texture	15	
Total	100	

Jelly Troubles. — The principal difficulties or troubles experienced in jelly making follows:

1. Tough jelly is the result of using too little sugar.
2. Too soft a jelly is caused by using too much sugar or too little acid for the amount of pectin present.
3. Gummy jelly is usually caused by over-cooking.
4. Crystals usually indicate use of too much sugar. In the case of grapes the tartaic acid is sometimes deposited in crystals.
5. Cloudiness is likely due to the presence of pulp.
6. Mold appearing at the edge of the paraffin may be the result of not having the paraffin hot enough to kill molds that fell upon the surface while the jelly was becoming firm.

PRESERVES AND MARMALADES

Strawberry Preserves. — Clean the berries and weigh them. Measure an equal weight of sugar into the preserving kettle. Add just enough water to dissolve the sugar and boil it 5 minutes or until a thick sirup is formed. Add the fruit and cook slowly until tender. Allow to cool partially, then turn into hot glasses. It is best to prepare only a small quantity at a time.

This directions may be applied to cherries, peaches, watermelon rind, apples or other fruits.

Rhubarb Conserve. — Clean the rhubarb and cut into 1-inch lengths. To each cup of rhubarb add ¾ cup of sugar. When the juice of the rhubarb has dissolved some of the sugar, place on the stove. Cook quickly, stirring constantly, to the consistency of jam. Add ¼ cup chopped nut meats for each cup of conserve. Pour into hot glasses.

This direction may be applied to plums.

Raspberry Jam. — Clean the berries and measure them. For each pint of berries measure 1½ cups of sugar. Add sugar to the berries. When the juice of the berries has dissolved some of the sugar, place on the stove. Cook quickly, stirring constantly, until quite thick.

If the fruit has very many seeds, some of them may be removed by passing some of the fruit thru a sieve before cooking.

This direction may be applied to gooseberries, and blackberries.

Peach or Apple Butter. — Over-ripe fruit that is not decayed can be used in this way. It is also a way of using the pulp remaining after juice has been extracted for jelly.

The fruit is cooked soft and passed thru a colander or sieve. To each cup of the pulp add ¾ cup of sugar. Cook carefully, stirring often to prevent burning.

If desired, the fruit may be flavored during the cooking with a little cinnamon, clove and mace tied in a cloth.

Grape Maramalade. — Clean the grapes and remove from the stems. Separate the pulp from the skins. Cook the pulp until the seeds separate. Rub thru a sieve to remove seeds. Add skins to the pulp with sugar, using for each cup of pulp 1 cup of sugar. Cook carefully to prevent burning, stirring often.

If desired, the fruit may be flavored during cooking with a little cinnamon, clove and mace tied in a cloth.

Carrot and Canteloupe Preserves or Maramalade. — Carrots or canteloupes may be used for preserves or marmalade as apples or peaches would be used.

DRYING

Drying is probably the oldest method of preserving foods and is to be recommended from the standpoint of economy of jars. With the evaporation of the water from any food product, the volume becomes much reduced. From the standpoint of flavor, dried products are desirable.

When drying small quantities, the food material may be spread thinly upon china or enamel plates and placed in a slightly heated oven with the door open or may be exposed to warm outdoor air. Direct rays of a very hot sun are objectionable. It is necessary to stir occasionally to have the product dry evenly and prevent growth of mold on the under surfaces.

Care must be taken to protect the food from flies. A very thin cover keeps away insects and offers protection from dust.

Sulphur fumes have been used to bleach the product, but their use is questionable and the federal regulation has strictly limited the amount of sulphur dioxide which may occur in commercial products. In the drying of products in the home, sulphur is unnecessary.

When large quantities are to be dried, a commercial evaporator is helpful. It is arranged with several shelves in a container allowing circulation of warm air. Some may be used on a kitchen range and others are combined with a special fire box.

A drying rack may be constructed by making a shelf of wire-screen cloth on a frame which allows free circulation of air and holds the cloth cover up from the fruit. The screen cloth should be covered with cloth so that the fruit does not come in direct contact with the metal.

Dried foods are best stored in cloth sacks hung in a dry place.

Dried Pumpkin. — Pare the pumpkin and cut into cubes. Boil till tender in very little water or cook by steaming. Mash and spread in thin layers upon plates to dry.

Dried Peas and Beans. — Allow the peas or beans to mature on the vines. Be sure they are dry before storing. Prepare the beans as for cooking. Spread on plates to dry. Stir frequently to prevent molding.

Green peas may be shelled and dried in the same way.

Dried Apples, Peaches, Apricots, Pears, Cherries. — Prepare the fruit as for cooking. Drain off excess juice. Spread on plates to dry.

Currants Dried With Sugar. — Use fully ripe currants. Add sugar in the proportion of 1 pound of sugar to 5 pound of currants. Heat till the currants rise to the top, then skim them off. Boil the sirup down until quite thick, then pour over the currants in shallow plates. Set to dry.

Cherries and gooseberries could be dried in the same way.

Dried Corn. — Dip the sweet corn into boiling water for just an instant. Cut the corn from the cob taking care not to cut too closely. Scrape the remaining portion from the cob. Spread in thin layers upon plates.

For storing of common winter vegetables see Ohio State University Extension Bulletin — "Fresh Vegetables in Winter" — by R. B. Cruikshank.

HOMEMADE FRUIT AND VEGETABLE DRIERS

O. H. BENSON — U. S. Department of Agriculture.

The ordinary sundrier, made up in the form of a cold frame, should have a window-sash top and ventilating holes or arrangements for the ready escape of the saturated air. The bottom of the drier should be tight so as to prevent the food products from absorbing moisture from the soil. The inside rack for holding the drying trays should be so made that there will be a free circulation of air around, under, and above the food product. The front and two ends should be covered with cheesecloth to provide for the circulation of air and to prevent dust and insects from entering the drier. Artificial heat may be applied by an alcohol stove or other device which will heat and force the circulation of air thru the drier, but will not saturate the food product with unpleasant odors. The drier may be provided with a metal bottom so as to be placed over an ordinary stove or wood fire. As a substitute for the applied heat beneath the drier, a fan system of some kind may be used for the purpose of stirring and irculating the air thru the drier.

Another type of drier is one that has been made especially for use on the kitchen stove and may be called the home stove drier. It should be constructed largely of metal, contain a jacket and tiers of movable drying trays which can be readily interchanged to insure equal drying of all trays at one and the same time. The top should be left open to permit the free circulation of air. If convenient to the housewife, it would be wise to provide a crane or arm arrangement attached by a clamp to the edge of the stove or range. The drier hung by a rope or cord swung over a small wheel or pully will make it possible to raise the drier and swing it off the stove while the stove is used for the preparation of a meal.

A third type of drier may be made on the same plan as the ones described above, but instead of using sun, artificial heat or stove heat, the fan system should be used for drying the product. A small electric fan would be successful or other fan system similar to the ones used in automobiles or different types of fanning mills. It may be operated by hand and run only a few seconds several times during the day or may be attached to some motor power. A small boys' windmill may be so constructed with a belt wheel and a cord belt, that it could be run from a house top down to the drier and run the little fan within the drying box.

A fourth type of drier is the rectangular frame arrangement made of metal or wood or even of mesh wire. On one of the sides a door should be arranged to open on hinges thru which two, three, or four trays of food products may be placed. These trays may be hung within the drier and should be so constructed as to permit them to revolve freely with the drier which is hung at both ends on an axle. An electric fan may be placed at the end and will force the dry air thru the drier and thus remove the filled air and make room for the dry air from without.

The old-fashioned sun drier, which depends entirely on the sun to perform the work of drying, is usually constructed simply as a board tray or even a metal try with mosquito netting over the same, and exposing the food product to the sun. This type does not provide for the sash cover nor does it provide for a free circulation of air around, under and over all parts of the food product. This method of drying is the least efficient of all and should not be used.

In addition to the homemade devices there are a number of manufactured types of home driers. The following companies represent those known as manufacturers of driers for the home.

Stutzman Manufacturing Co., Ligonier, Indiana.
Southern Canner and Evaporation Co., Chattanooga, Tenn.
The Grange Sales Association, LaFayette Bldg., Philadelphia, Pa.
Edward B. Fahrney, Waynesboro, Pa.

PRESERVATION OF EGGS

At the time of the year when there is an over-production of eggs, it is desirable to preserve them for use when they are not so abundant. A number of methods have been devised for keeping them, but the most satisfactory method is by the use of water glass. It is simple, efficient and inexpensive.

Eggs that are selected for preserving should be collected daily from clean nests and should, in no case, be old, sun-baked, cracked or thin-shelled. Infertile eggs are the most desirable.

The container may be any receptacle that is impervious or does not corrode. Glazed earthenware and galvanized containers are satisfactory. The following gives the sizes of jars with approximate capacity for eggs and the amount of water-glass solution required to cover the eggs:

1 gallon — 40 eggs, 3½ pints of solution.
2 gallon — 80 eggs, 7¼ pints of solution.
3 gallon — 120 eggs, 10¾ pints of solution.
4 gallon — 160 eggs, 14½ pints of solution.
5 gallon — 200 eggs, 18 pints of solution.
10 gallon — 400 eggs, 36 pints of solution.

Water glass as bought on the market is usually in the sirup form and is chemically known as sodium silicate. The best proportion for making the solution is 1 cup of water glass to 10 cups of water that has been boiled and cooled. The eggs need not be put into the solution all at one time, but as they are gathered from day to day.

Eggs are sometimes preserved in this way for commercial purposes, but they must be sold as storage, not fresh eggs. After being in the solution for some time the shell becomes smooth, as the pores are filled with the silicate. When these eggs are boiled the shell should be punctured with a pin at the blunt end, else they will break. In all instances, they should be washed before using.

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